The Eating and Drinking Ability Classification System: concurrent validity and reliability in children with cerebral palsy

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Abstract: AIM: As there is little evidence for concurrent validity of the Eating and Drinking Ability Classification System (EDACS), this study aimed to determine its concurrent validity and reliability in children and adolescents with cerebral palsy (CP). METHOD: After an extensive translation procedure, we applied the German language version to 52 participants with CP (30 males, 22 females, mean age 9y 7mo [SD 4y 2mo]). We correlated (Kendall's tau or K) the EDACS levels with the Bogenhausener Dysphagiescore (BODS), and the EDACS level of assistance with the Manual Ability Classification System (MACS) and the item 'eating' of the Functional Independence Measure for Children (WeeFIM). We further quantified the interrater reliability between speech and language therapists (SaLTs) and between SaLTs and parents with Kappa ( ). RESULTS: The EDACS levels correlated highly with the BODS (K =0.79), and the EDACS level of assistance correlated highly with the MACS (K =0.73) and WeeFIM eating item (K =-0.80). Interrater reliability proved almost perfect between SaLTs (EDACS: =0.94; EDACS level of assistance: =0.89) and SaLTs and parents (EDACS: =0.82; EDACS level of assistance: =0.89). INTERPRETATION: The EDACS levels and level of assistance seem valid and showed almost perfect interrater reliability when classifying eating and drinking problems in children and adolescents with CP. WHAT THIS PAPER ADDS: The Eating and Drinking Ability Classification System (EDACS) correlates well with a dysphagia score. The EDACS level of assistance proves valid. The German version of EDACS is highly reliable. EDACS correlates moderately to highly with other classification systems.

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THE EATING AND DRINKING ABILITY CLASSIFICATION SYSTEM: CONCURRENT VALIDITY AND RELIABILITY IN CHILDREN WITH CEREBRAL PALSY

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SUMMARY

Aim: As there is little evidence for concurrent validity of the Eating and Drinking Ability Classification System (EDACS), this study aimed to determine its concurrent validity and reliability in children and adolescents with Cerebral Palsy (CP).
Method: After an extensive translation procedure, we applied the German language version to 52 participants with CP, 22 females, mean 9 years 7 months (4 years 2 months). We correlated (Kendalls tau or K_{tau}) the EDACS levels with the 'Bogenhausener Dysphagiescore' (BODS) and the EDACS level of assistance with the Manual Ability Classification System (MACS) and the item 'eating' of the Functional Independence Measure for children (WeeFIM). We further quantified the interrater reliability between Speech and Language Therapists (SaLTs) and between SaLTs and parents.
Results: The EDACS levels correlated highly with the BODS (K_{tau}=0.79) and EDACS level of assistance correlated highly with the MACS (K_{tau}=0.73) and WeeFIM eating item (K_{tau}=-0.80). Interrater reliability proved almost perfect between SaLTs (EDACS: Kappa=0.94, EDACS level of assistance: Kappa=0.89) and SaLTs and parents (EDACS: Kappa=0.82, EDACS level of assistance: Kappa=0.89).
Conclusion: The EDACS levels and levels of assistance appear valid and showed almost perfect interrater reliability when classifying eating and drinking problems in children and adolescents with CP.

Running title: Concurrent validity and reliability of the EDACS

Keywords: cerebral palsy, eating ability, drinking ability, classification system, pediatric dysphagia

What this paper adds

- EDACS correlates well with a dysphagia score

- EDACS level of assistance proves valid

- German version of EDACS is highly reliable

- EDACS correlates moderate to high with other classification systems

Classification systems to describe functional abilities in children with cerebral palsy (CP) such as the Gross Motor Function Classification System (GMFCS)[1], the Manual Ability Classification System (MACS)[2], and the Communication Function Classification System (CFCS)[3] have demonstrated their relevance for research and clinical practice.[4]
Recently, these classifications were expanded by the addition of the Eating and Drinking Ability Classification System (EDACS)[5], because many children with CP experience difficulties with eating and drinking. As information on eating and drinking difficulties in children with CP is based on different definitions and agreement on the construct parameters is lacking, the prevalence of such difficulties in children with CP is hard to estimate and varies widely.[6] Reported prevalence numbers vary from 27%[7] up to 85%[8]. A standardized functional rating scale describing eating and drinking ability may provide more meaningful estimates of prevalence and limitations to function than prevalence estimates based on scales or measures of eating and drinking impairment alone.

The EDACS describes the functional eating and drinking abilities of children with CP aged 3 years and older, using 5 distinct levels. The EDACS refers to key features of 'safety' (aspiration and choking) and 'efficiency' (amount of food lost and time taken to eat). The EDACS also provides a three-level ordinal rating scale to describe the degree of assistance required (Independent; Requires Assistance; Totally Dependent).
Content validity of the EDACS was demonstrated during its development: (i) drafting informed by literature and clinical experience, (ii) modification by nominal groups, (iii) refinement in an international Delphi survey, and (iv) testing of agreement and reliability between classifications made by speech and language therapists (SaLTs), and between SaLTs and parents.[5] The EDACS showed substantial agreement between SaLTs and moderate agreement between SaLTs and parents. Benfer et al.[9] reported a poorer interrater reliability of two SaLTs and provided first information on the (almost perfect) intrarater reliability. When EDACS was compared with other tools measuring similar construct, that is concurrent validity, they found a moderate correlation between the EDACS and the North American Growth Questionnaire and a high correlation with the Dysphagia Severity Scale (which is based on Dysphagia Disorders Survey part 2 scores[10]). This study had several limitations including age range limited from 3 to 5 years. However, both studies[5, 9] showed moderate to good relationships with the GMFCS. Monbaliu et al.[11], who investigated only children with dyskinetic CP, compared the EDACS not only with the GMFCS (Spearman's ρ=0.78), but also with the MACS (ρ=0.77), CFCS (ρ=0.49), and the Viking Speech Scale (ρ=0.73). In summary, the original EDACS version is reliable and content validity is given, but information on the concurrent validity is limited and lacking for the EDACS levels and levels of assistance.
German-speaking countries have no equivalent system to classify the eating and drinking ability in children with CP. However, the 'Bogenhausener Dysphagiescore' (BODS) is a well-established scale that assesses the severity of eating and drinking problems of different etiologies.[12] While this scale is currently also applied to children with CP, it was not developed for this group specifically. Therefore, we aimed to determine the concurrent validity of the EDACS and the EDACS level of assistance. We first translated it into a German version and had it back translated to ensure accuracy and integrity of the items. Then, we determined the interrater reliability and the relationships between the EDACS and the GMFCS, MACS and CFCS. We hypothesized that the EDACS and EDACS level of assistance would correlate highly with tools assessing similar constructs (i.e. measures of dysphagia or independence of eating, respectively). Furthermore, we hypothesized that the reliability and the correlation between EDACS and the GMFCS will be similar to those shown for the

original English version. Finally, we compared the EDACS with other classification scales.

METHOD

Translation

The translation procedure for the EDACS was as follows: (1) Translation into German by two independent SaLTs. (2) Creation of a consensus version by a doctor of child and adolescent medicine and a SaLT. (3) Examination by two SaLTs. (4) Back-translation into English by a translation company. (5) Refinement of the translation, followed by endorsement by the author of the original version. Additional information on the translation process is in the supporting information.

Through this extensive and diligent translation and cross-cultural adaptation process, the German version is comprehensible for all German-speaking countries and simultaneously presents a strong convergence with the original language version. The German EDACS manual and the algorithm can be downloaded from the EDACS website (www.EDACS.org) and the website of the University Children's Hospital Zurich (www.kispi.uzh.ch).

Study design

We performed a prospective cross-sectional psychometric study. The human research ethical committee of the Canton of Zurich approved the study (KEK-ZH-Nr. 2011-0404).

Participants

Children and adolescents with a diagnosis of CP aged 3 years and above undergoing rehabilitation at the Rehabilitation Center of the University Children's Hospital Zurich were included in the study. Participants who were not able to eat in their everyday mealtime seating (e.g. due to hip surgery prior to rehabilitation), children and adolescents and/or parents who declined to participate in the study, and participants whose parents were not able to understand written German in order to read the EDACS and the patient information and informed consent forms were excluded from the study. According to the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) guidelines for psychometric studies, a sample size of at least 50 participants was required, in order to provide good methodological quality.[13]

Measures of comparison

The BODS comprises an eight-level ordinal rating scale to assess the swallowing of saliva (BODS1) and an eight-level ordinal rating scale to assess the oral intake of food and liquids (BODS2). Level 1 indicates no impairment and level 8 indicates most seriously impaired. The BODS total score determines the severity of the eating and drinking problems (2: no dysphagia; 15-16: most severe dysphagia). The BODS was developed in a step-wise approach.[14] First, 136 experts in dysphagia treatment rated a first version of the BODS and confirmed the choice of the BODS1 and BODS2 indicating content validity. Based on 107 responses, some items were modified. Both agreement and reliability between independent raters who scored data of 79 patients, 33 females, 70 years 0 months (14 years 0 months) old, with ischemic (n=32) and hemorrhagic (n=15) stroke, cerebral hypoxia (n=11), traumatic brain injury (n=14) and various other diagnoses (n=7) and neurogenic dysphagia proved excellent (BODS1: 91.1%, ρ=0.98; BODS2: 97.5% ρ=0.96). While the BODS1 and BODS2 measure functional swallowing difficulties and were developed for adults, they are also used

with children because there are no pediatric measures in countries where German is spoken and the 'Deutsche Gesellschaft für Neurologie' even recommends the BODS as an outcome measure.[15]

We compared the EDACS level of assistance with the MACS level and the item 'eating' of the Functional Independence Measure for Children (WeeFIM). The WeeFIM assesses a child's level of independence during various activities of daily living on the performance level.[16] It comprises 18 items scored on a 7-point ordinal scale, covering the domains self-care, mobility, and cognition. The WeeFIM has excellent test-retest and interrater reliability.[17, 18] The item 'eating' includes the use of suitable utensils to bring food and liquid to the mouth (e.g. picking up utensil, scooping food on it, and bringing it to the mouth), chewing and swallowing, or drinking from a cup or glass.[16] A score of 7 indicates complete independence (the child safely performs all tasks without assistance: eating from a plate, managing a variety of food consistencies, drinking from a cup or glass, using a spoon or fork to bring food to the mouth, chewing and swallowing food). A score of 1 indicates total assistance (e.g. a helper performs 100% of the work necessary to feed the child).

Procedures

After admission to our centre, children (≥3 years) or adolescents with CP and parents were informed (verbally and in writing) about the study. Informed consent was obtained. SaLTs were scheduled to observe the children eating and drinking in their usual mealtime seating for at least one meal (lunch). The textures of food and fluids during mealtimes in the rehabilitation center were similar to those the participant received at home. If the participant required adapted aids to eat or drink, these were brought by the parents from home or provided by occupational therapists from our center. If the participant required assistance during the mealtime, this was provided by the attending nurse.

Eight SaLTs with 5.9 years (7.2 years) of practical experience (range 1 to 23 years) and with specific knowledge in therapy of children and adolescents with CP and eating and drinking difficulties participated in this study. Each participant was observed by two from these eight SaLTs. One of them (SaLT1) was most familiar with the participant's abilities and, ideally, treated the child regularly; the other SaLT (SaLT2) was either familiar with the child's eating and drinking ability or participated at least once during a meal with the child. The observations occurred on different occasions to obtain independent measurements. The two SaLTs classified participants' eating and drinking abilities independent of each other using EDACS, in order to determine the inter-rater reliability of the eating and drinking ability and the level of assistance required. SaLTs only observed the mealtimes, which were not videotaped, and did not assist during the mealtimes. They were allowed to read the patient documentation concerning the regular intake of food and fluids. Specific diagnostics like videofluoroscopy were not carried out.

In a similar way to the original study,[5] SaLTs and, especially, parents used their knowledge of the everyday eating and drinking ability of participants and classified function using the EDACS level and level of assistance based on the instructions provided in the translated documents. Neither SaLTs nor parents received any training in using the EDACS.
SaLT1 and SaLT2 rated also the BODS1, BODS2 and the CFCS (if missing in the electronic health records). The SaLTs were not blinded for the BODS and CFCS scorings, because these were clinical scores. The parents rated their child at home (during the weekend) or in the

center and their ratings were sent through prepaid postage or handed in personally to the investigator, respectively.
All ratings were carried out within a two week' period to allow independent but stable measurements. GMFCS, MACS, both assessed by experienced physicians, and WeeFIM, routinely assessed by certified nurses, were obtained from the patient records.

Statistical analysis
We performed descriptive analyses to describe the participants and the various outcome measures. We quantified the concurrent validity between the EDACS level and the BODS (BODS1, BODS2 and BODS total scores) and between the EDACS level of assistance and the MACS and WeeFIM eating item using Kendall's Tau b (K_{tau}). We interpreted K_{tau} using Munro's classification for correlation coefficients (K_{tau} values are generally lower than other correlation coefficients, for example, Spearman's ρ): 0.00 to 0.25: little if any correlation; 0.26 to 0.49: low correlation; 0.50 to 0.69: moderate correlation; 0.70 to 0.89: high correlation; 0.90 to 1.00: very high correlation.
In line with international recommendations,[19] we calculated quadratic weighted Kappa values to quantify the interrater agreement of the EDACS. We also calculated percentage of absolute agreement and intraclass correlation coefficients (ICCs; two way mixed effects, absolute agreement, single measures) to compare the values with those published in previous studies. Kappa values of 0.41-0.60 indicate moderate agreement, 0.61-0.80 substantial, and 0.81-1.00 almost perfect agreement.[20] We considered ICCs exceeding 0.7 acceptable for measures in groups and ICCs exceeding 0.9 reliable for clinical use with individual patients.[21, 22] Relationships between the EDACS level and the other classification scales were quantified again with K_{tau}. We performed the statistical analyses with SPSS, version 22.0 (IBM, Armonk, NY, USA) and calculated kappa values using Vassarstats (www.vassarstats.net/kappa.html). We set α at 0.05.

RESULTS

Participants
We invited 62 children and adolescents with CP and their parents to participate between January 2015 and June 2017. Six potential participants declined to participate. Due to difficulties with planning, the EDACS could not be assessed by the therapists for 4 participants with CP. From the 52 participants, 47 were rated by two SaLTs. The average age (± SD) of the participants with CP was 9 years 7 months (4 years 2 months) and it ranged from 3 years 4 months to 16 years 10 months. Table I shows the other characteristics of the 52 participants with CP.

Assessments
Table II displays the distributions of the EDACS levels and level of assistance. Overall, better EDACS assistance levels are found in children with better EDACS levels. They correlated highly (K_{tau}=0.70, $p<0.001$, n=52).
The BODS total score varied from 2 to 11 (median 3). The BODS1 and BODS2 scores varied between 1 and 3 (median 1), and 1 to 8 (median: 1.5), respectively.
The median WeeFIM eating item score was 4.5. The number of observations were: 7 (complete independence): n=12; 6 (modified independence): n=11; 5 (supervision or setup): n=3; 4 (minimal assistance): n=6; 3 (moderate assistance): n=3; 2 (maximal assistance): n=3; and 1 (total assistance): n=14.

Concurrent validity
We used the scorings of SaLT1 (except for one participant with CP, where we only had a scoring of SaLT2). The EDACS levels showed moderate to high correlation with the BODS (BODS total score: K_{tau}=0.79, p<0.001, n=52; BODS1: K_{tau}=0.57, p<0.001, n=51; BODS2: K_{tau}=0.85, p<0.001). The EDACS level of assistance showed high correlation with the MACS (K_{tau}=0.73, p<0.001) and the WeeFIM eating item (K_{tau}=-0.80, p<0.001).

Interrater-Reliability
Agreement between SaLTs (Table III) was almost perfect for the EDACS level (Kappa=0.94; observed agreement=85%; expected agreement=30%; ICC=0.94, 95%CI=0.90-0.97; p<0.001) and level of assistance (Kappa=0.89; observed agreement=87%; expected agreement=41%; ICC=0.89, 95%CI=0.82-0.94; p<0.001).
Agreement between SaLTs and parents (Table IV) was almost perfect for the EDACS levels (Kappa=0.82; observed agreement=69%; expected agreement=30%; ICC=0.83, 95%CI=0.72-0.90; p<0.001) and level of assistance (Kappa=0.89; observed agreement=87%; expected agreement=37%; ICC=0.89, 95%CI=0.82-0.94; p<0.001).

EDACS versus other classification scales
The EDACS and level of assistance showed moderate to high correlation (for all, p<0.001) with the other classification scales (Table V). Table VI presents the distribution of the EDACS levels compared to other classification scales.

DISCUSSION

We were able to confirm our first hypothesis that correlations between the EDACS and EDACS level of assistance and other measures measuring a similar construct were higher compared to other correlations. The EDACS level correlated highly with the BODS total score and particularly highly with the BODS2 score. The BODS2 assesses oral intake of food and liquids, which is most comparable with the EDACS. These correlations slightly exceeded previously reported comparisons, for example, with the Dysphagia Severity Scale ($K_{tau=}$0.74)[9].
The EDACS offers preferred characteristics to the BODS, because it provides specific functional descriptions of the eating and drinking abilities in children and adolescents with CP and therefore improves inter-disciplinary communication.
To our knowledge, this is the first study to examine the concurrent validity of the EDACS level of assistance. We found high correlations with the MACS and even higher ones with the WeeFIM eating item. Compared to the MACS, which classifies the handling of objects in daily life, the WeeFIM eating item is more specific because it focuses on the handling of utensils needed to bring food and drink to the mouth.

Interrater-Reliability
When pairs of SaLTs rated the EDACS level and level of assistance, the rate of absolute agreement was almost perfect for both scales. Disagreement occurred by one level at most. The interrater reliability for the EDACS level between SaLTs and parents (Kappa=0.82) was slightly lower than between SaLTs (Kappa=0.94), but still almost perfect. One explanation for this lower reliability could be that SaLTs could not rate participants' performance eating firm

bite and effortful chew textures, because the rehabilitation center did not offer these textures. This is in line with the original study where the authors suggested that children at school or at home were exposed to different levels of risk (i.e. in contrast to the parents, school environments limited the exposure to food and fluid textures that increased the risks of choking and aspiration).[5] For the EDACS level of assistance the rate of absolute agreement between SaLT and parents was the same as between pairs of SaLTs.
These findings are comparable or even somewhat better than the results of the original study[5] (between SaLTs: Kappa=0.72, absolute agreement=78%, ICC=0.93; between parents and SaLTs: Kappa=0.45, absolute agreement=58%, ICC=0.86), which confirms part of our second hypothesis. Our study design was similar to that of the original study, apart from the location (special schools versus rehabilitation center), and the number of participants and involved raters. In the original study 129 children, 48 parents and 25 SaLTs participated, while we included 52 children, 52 parents and 8 SaLTs. Our results were better than the interrater reliability reported by Benfer and colleagues (Kappa=0.36, absolute agreement=52%, ICC=0.79).[9] We assume that the poorer interrater reliability in the study of Benfer et al. seems to arise from various issues in the study design. The EDACS was retrospectively classified and two speech pathologists unfamiliar with the child rated function from a single mealtime video.
In our study, disagreement in the rating of the EDACS level occurred mainly between level I and level II. The occurrence of level I and II were indeed highest in our study (76%). Another explanation could be that it is more difficult to differentiate between levels where there are minimal functional limitations. While previous reports[5, 9] found poorest reliability in the midrange of the ratings, particularly for EDACS level III, our results suggest that the recommendation of Benfer et al.[9] to add a rating addendum for classification of ambiguous cases is not necessary.

Relationships between the EDACS and other functional classification scales
Correlations between EDACS level and other functional classification scales such as the GMFCS, MACS and CFCS were moderate ($0.52 \leq K_{tau} \leq 0.69$). These findings support the current view that each classification system including the EDACS is needed to obtain a comprehensive picture of the functional abilities of the child with CP[3] and that the individual scales are distinct enough to represent different functions of the motor system. The relationship between the EDACS and the GMFCS in our study is similar to those previously reported ($K_{tau}=0.5$)[5], which allows us to accept our second hypothesis completely.
When looking at the distributions between EDACS, GMFCS, and MACS levels, many children had severe limitations of gross motor and manual functions but few limitations in eating and drinking. We assume that this is linked to the reason for rehab admission as children are rarely admitted for an intensive rehabilitation program specifically targeting eating and drinking difficulties; most are admitted because of deteriorations in gait or upper extremity use. This might have to do with the perspective of some caregivers and rehabilitation specialists on eating and drinking difficulties: while considering impairments in gait or upper limb function 'abnormal', long-term persisting difficulties in eating and drinking could be perceived as 'normal'. Furthermore, while oral-motor interventions seem effective in children at an age between 10 and 30 months where most of the physiological oral-motor development occurs (see, for example, [23]), oral-motor interventions occur also at higher ages.[24] While the evidence of the effectiveness at these ages is missing[24], interventions have not yet been stratified according to severity of impairment. The EDACS could be valuable in linking severity of limitation in function to effectiveness of oral-motor intervention.

Limitations

A limitation of this study could be that the data collection through SaLTs occurred in a rehabilitation center. Even though the housing groups of the rehabilitation center support a family-like environment, it is a specialist setting where children might have received individualized adaptions for mealtimes such as special seat adjustments or adapted tableware and cutlery to improve eating and drinking abilities.

Furthermore, while two SaLTs observed the children at different mealtimes to obtain independent ratings, due to practical reasons (e.g. short rehabilitation stay), two SaLTS observed some children simultaneously. The ratings were made independently, as the SaLTs were not sitting next to each other and were not allowed to talk with each other during the observation or the consecutive rating. Also the EDACS forms were handed in to the research department separately. While an independent rating of video recordings of mealtimes might have been methodologically preferred, and would have facilitated independent intra-rater reliability, it was difficult to implement in our setting without disturbing regular mealtime routines.

Conclusion

In conclusion, the study showed high concurrent validity for the EDACS level and EDACS level of assistance in a group of children and adolescents with CP aged between 3 and 17 years. The study also demonstrated an almost perfect interrater reliability for the German version of the EDACS level and its level of assistance. Relationships with other functional classification systems were comparable to those previously described. We recommend that therapists and researchers employ the EDACS to improve clinical and research practice. We further recommend German-speaking cerebral palsy surveillance registers to include the German EDACS version to improve our knowledge on the prevalence of eating and drinking difficulties in children with CP.

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Table I. Characteristics of 52 children and adolescents with CP

Characteristics	n	%
Gender		
Females	22	42
Males	30	58
CP subtype		
Spastic bilateral CP	30	58
Spastic unilateral CP	3	6
Dystonic CP*	5	10
Ataxic CP	5	10
Mixed CP	8	15
Non-classifiable CP	1	2
GMFCS		
I	4	8
II	12	23
III	10	19
IV	13	25
V	11	21
missing	2	4
MACS		
I	5	10
II	18	35
III	9	17
IV	9	17
V	8	15
missing	3	6
CFCS		
I	11	21
II	19	37
III	5	10
IV	8	15
V	9	17
Epilepsy	17	33
Tracheal cannula	0	0
Percutaneous endoscopic gastrostomy tube	5	10
Baclofen pump	5	10

Abbreviations: n, number; CP, cerebral palsy, GMFCS, Gross Motor Function Classification System; MACS, Manual Ability Classification System; CFCS, Communication Function Classification System. We had no children with dyskinetic CP with chorea-athethosis.

Table II. Distribution of EDACS levels and levels of assistance

EDACS level of assistance	EDACS levels					
	I	II	III	IV	V	Total
I	16	10	0	0	0	26
II	3	10	2	0	0	15
III	0	0	4	5	2	11
Total	19	20	6	5	2	52

Abbreviation: EDACS, Eating and Drinking Ability Classification System

Table III. Agreement between SaLTs

	SaLT 1					
SaLT 2	I	II	III	IV	V	Total
I	15	2	0	0	0	17
II	3	14	0	0	0	17
III	0	1	4	1	0	6
IV	0	0	0	4	0	4
V	0	0	0	0	2	2
Total	18	17	4	5	2	46

	SaLT 1			
SaLT 2	Independent	Requires assistance	Totally dependent	Total
Independent	24	3	0	27
Requires assistance	0	9	2	11
Totally dependent	0	1	7	8
Total	24	13	9	46

Abbreviations: SaLT, speech and language therapist. Blue cells indicate agreement.

Table IV. Agreement between SaLTs and parents

	SaLTs					
Parents	I	II	III	IV	V	Total
I	13	4	0	0	0	17
II	5	15	1	0	0	21
III	0	1	4	1	0	6
IV	1	0	1	2	0	4
V	0	0	0	2	2	4
Total	19	20	6	5	2	52

	SaLTs			
Parents	Independent	Requires assistance	Totally dependent	Total
Independent	22	3	0	25
Requires assistance	4	12	0	16
Totally dependent	0	0	11	11
Total	26	15	11	52

Abbreviations: SaLTs, speech and language therapists. For one participant, we included the EDACS scoring of SaLT2; all other scorings were of SaLT1. Blue cells indicate agreement.

Table V. EDACS versus other classification scales

	GMFCS (n=50)	MACS (n=49)	CFCS (n=52)
EDACS	0.52	0.69	0.64
EDACS level of assistance	0.57	0.73	0.72

Abbreviations: n, number; EDACS, Eating and Drinking Ability Classification System; GMFCS, Gross Motor Function Classification System; MACS, Manual Ability Classification System; CFCS, Communication Function Classification System; WeeFIM, Functional Independence Measure for Children.

Table VI. Distribution of EDACS levels compared to other classification scales

	EDACS					
GMFCS	I	II	III	IV	V	Total
I	3	1	0	0	0	4
II	6	6	0	0	0	12
III	5	5	0	0	0	10
IV	4	5	4	0	0	13
V	1	1	2	5	2	11
Total	19	18	6	5	2	50

	EDACS					
MACS	I	II	III	IV	V	Total
I	5	0	0	0	0	5
II	9	9	0	0	0	18
III	2	7	0	0	0	9
IV	2	2	5	0	0	9
V	0	0	1	5	2	8
Total	18	18	6	5	2	49

	EDACS					
CFCS	I	II	III	IV	V	Total
I	8	3	0	0	0	11
II	9	10	0	0	0	19
III	2	3	0	0	0	5
IV	0	3	3	0	2	8
V	0	1	3	5	0	9
Total	19	20	6	5	2	52

Abbreviations: EDACS, Eating and Drinking Ability Classification System; GMFCS, Gross Motor Function Classification System; MACS, Manual Ability Classification System; CFCS, Communication Function Classification System.